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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/067,790	02/08/2002	Alison A. McCormick	42254	3922

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EXAMINER	
AEDER, SEAN E	

ART UNIT	PAPER NUMBER
1642	

DATE MAILED: 05/04/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/067,790	MCCORMICK ET AL.	
	Examiner	Art Unit	
	Sean E. Aeder, Ph.D.	1642	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 1 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☐ Responsive to communication(s) filed on _____.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) 51-68 is/are pending in the application.

4a) Of the above claim(s) 68 is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) 51-64 is/are rejected.

7)☒ Claim(s) 65-67 is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

Detailed Action

RE: McCormick et al.

Election/Restrictions

The response filed on March 22, 2005 to the restriction requirement of February 17, 2005 has been received. Applicant has elected Group IV, claims 51-53 for examination with traverse. Claims 51 and 53 have been amended by Applicant, and claims 54-68 are new. Because applicant did not distinctly and specifically point out the supposed errors in the restriction requirement, the election has been treated as an election without traverse (MPEP 818.03(a).

Claims 51-68 are pending.

Claim 68 was withdrawn from further consideration by the examiner under 37 CFR 1.142(b) as being drawn to a non-elected invention.

Claims 51-67 are currently under consideration.

Specification Objections

The disclosure is objected to because of the following informalities:

The first line of the specification needs to be updated with a priority statement claiming priority to U.S. provisional application 60/155,979. For additional information on claiming benefit to an earlier filed application see United States Patent and Trademark

Office OG Notices: 1268 OG 89 (18 March 2003) "Benefit of Prior-Filed Application."

Appropriate correction is required.

Claim Objections

Claim 51 is objected to because of the following informalities:

In the amended claim, parts (b) and (c) of claim 51 reads: "(b) joining the first nucleic acid construct encoding a second part of the linker to a nucleic acid encoding the second domain of the polypeptide to produce a second nucleic acid construct; (c) incorporating said second nucleic acid construct into a plant expression vector in frame so that, when expressed, the polypeptide bears the first and second domain separated by a linker." As written, it is unclear what comprises the first nucleic acid. Is the first nucleic acid the first domain of the polypeptide joined to the first part of the linker as stated in (a), or is the first nucleic acid construct the second domain of the polypeptide joined to the second part of linker as suggested in (b)? In (c), it is unclear what the second nucleic acid structure is comprised of. Is the second nucleic acid construct the part of the linker that joins to the nucleic acid encoding the first domain or is the second nucleic acid the combination of the first and second domains and the linker? In context, the amended claim makes little sense and does not reflect the method disclosed in the specification and the original application. This objection can be obviated by amending the claims to reflect that which was originally presented in claim 51. Appropriate correction is required.

Claim 59 is objected for reciting "an immunoglobulins." It is suspected that Applicant means "an immunoglobulin." Appropriate correction is required.

Claims 65-67 are objected to as being dependant from a rejected base claim.

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 52 and 55 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 52 reads "said product." There is insufficient antecedent basis for this limitation in the claim.

Claim 55 recites "said cell or organism" in claim 51. There is insufficient antecedent basis for this limitation in the claim.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

The factual inquiries set forth in *Graham* **v.** *John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

Claims 51-64 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hakim et al. (Journal of Immunology, 157(12): 5503-5511, 1996) in view of Fiedler et al. (Immunotechnology, 3(3): 205-216, 1997).

Hakim et al. teach a method of producing a polypeptide self-antigen idiotype, specifically a scFv, for the treatment of B-cell lymphoma. Hakim et al. teach a nucleic acid construct encoding the self-antigen was made by joining tumor cell derived nucleic acids encoding a V_H domain connected to an Ig V_L domain via a 15 amino acid linker sequence (see page 5504 and figure 1, in particular). When expressed in cells, a polypeptide was produced with the expected combined molecular weight of the two polypeptide domains and the linker (see 5505 right column and figure 2, in particular). Because the scFv (idiotype) was produced and induced the production of polyclonal antibodies that are reactive with the surface Ig on B cell lymphomas (see page 5506, in particular), it is inherent that the linker facilitates secretion and correct folding of the scFv to mimic the native form of the surface Ig expressed on the surface of B cell lymphomas. Hakim et al. also teach the administration of scFv in a PBS solution (i.e., integrated into a carrier; pharmaceutically acceptable carrier or excipient) that was able to elicit an anti-tumor immune response, wherein the anti-tumor immune response is measured from collected sera in an ELISA (see page 5506 left column, in particular). Hakim et al. also teach that the scFv is administered to the subject in which said tumor originated, in this case the scFv construct was created from a B cell lymphoma cell line and administered to mice injected with the identical B cell lymphoma cell line, where it

produced an idiotype-specific anti-lympohma immune response (see pages 5505-5506, in particular). Also, since the scFvs taught by Hakim et al. contained the complete V_H domain, it is inherent that the complete V_H domain includes a CDR, absent evidence to the contrary. Hakim et al. also teach an scFv-GM-CSF fusion, wherein the GM-CSF is an immunostimulatory cytokine acting as an adjuvant (see page 5505 left column, in particular).

Hakim et al. does not teach construction of scFv in plants or plant cells (claims 51, 53, 57, and 58). This deficiency is made up in the teachings of Fielder et al.

Fielder et al. teach a method of making scFv in high quantities in plant cells using a plant vector expression system (see page 208, in particular). Fielder et al. further teach that plant expression of scFvs offers a number of advantages including no requirements for complex culture media, sterility or large culture vessels, the possibility of composting plant material waste, no contamination with mammalian viruses or bacterial endotoxins (the later two reasons are especially important for producing scFvs intended for therapeutic use) (see page 206 left column, in particular). Furthermore, Fielder et al. teach that plant material offers stable short- or long-term storage of scFvs, which is advantageous if the harvested material has to be transported or stored before further processing.

Therefore, it would have been prima facie obvious to one of ordinary skill in the art at the time the invention was made to modulate the method of Hakim et al. so as to produce an scFv comprising B cell Ig epitopes connected by a linker sequence in a plant or plant cell as taught by Fielder et al. One would have been motivated to do so because plant expression of scFvs offers a number of advantages including no requirements for complex culture media, sterility or large culture vessels, the possibility of composting plant material waste, no contamination with mammalian viruses or bacterial endotoxins, and stable short- or long-term storage of the taught scFvs allows harvested material to be transported or stored before further processing. Moreover, one would have a reasonable expectation of success because Fielder et al. successfully teach the recombinant expression of scFvs in plant cells.

Conclusion

No claim is allowed.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Sean E. Aeder, Ph.D. whose telephone number is 571-272-8787. The examiner can normally be reached on M-F: 8:30-5:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jeffrey Siew can be reached on 571-272-0787. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

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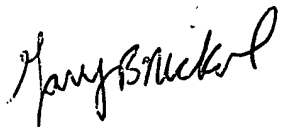

GARY NICKOL
PRIMARY EXAMINER